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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,160	07/28/2003	Udayan Dasgupta	TI-35857	4349

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TEXAS INSTRUMENTS INCORPORATED  
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EXAMINER
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JAMAL, ALEXANDER

ART UNIT	PAPER NUMBER
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2614

NOTIFICATION DATE	DELIVERY MODE
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12/03/2007

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspto@ti.com  
uspto@dlemail.itg.ti.com

## Office Action Summary

**Application No.**

10/628,160

**Applicant(s)**

DASGUPTA ET AL.

**Examiner**

Alexander Jamal

**Art Unit**

2614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |  |
|--|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____   |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Based upon the submitted arguments, the examiner notes that no claims have been amended.
2. Examiner notes that applicant has defined the term 'detect directly' to mean that the PSD is detected non iteratively (applicant arguments pages 2-3). Examiner reads this as only applying to the measurement of the PSD of the noise in the channel. Applicant measures the noise once and then performs a set of algorithms on the measured PSD. Examiner notes that applicant's algorithm is read to be iteratively performed as it will process the PSD data iteratively, applying it to various known noise modeling systems and then selecting the one to minimize error (applicant's spec para 45) which is an iterative process. Applicant's algorithm in the spec may also be considered iterative in other places as well such as the step of minimizing the mean squared error (an iterative process) (applicant's spec paragraph 37).

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the

international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. **Claims 1-3,5,7-10,12,14**, rejected under 35 U.S.C. 102(e) as being anticipated by Belge et al. (US20060182169A1).

As per **claims 1,8**, Belge discloses a noise source identifier and estimator (Fig. 1, blocks 110,120 detect and block 150 estimates) that measure and classify DSL loop characteristics, including crosstalk power level in the frequency domain. (paragraphs 87,88, Fig. 7).

As per **claims 2,9**, rf sources of noise are considered (para. 88).

As per **claim 3,10**, the examiner reads any measured source as 'unknown' until; it is classified by the system.

As per **claims 5,12**, as per applicant's specification page 12, the equation of claim 5 is read as: the noise source PSD is equal to a shape function (basis function) of the noise PSD times a scaling function. Belge discloses an equation (para. 90) stating that the PSD is equal to  $1/K$  (scaling function) times a Sum of an FFT (basis function).

As per **claims 7,14**, they are rejected as per the claim 1 rejection.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 4,6,11,13**, are rejected under 35 U.S.C. 103(a) as being unpatentable over Belge et al. (US20060182169A1) as applied to claims 1,8.

As per **claims 4,6,11,13**, Belge discloses that noise measurements (identified noise sources) are used with predefined channel models in order to analyze the particular DSL loop (para. 70,71). Belge discloses that noise sources are identified by comparing them to known crosstalk spectral masks, such as DSL NEXT, HDSL NEXT, T1 NEXT, White noise (Gaussian) (para. 91). Belge discloses that the G.dmt and G.lite standards (from the ITU) may be use as part of the analysis process (para. 64), but does not specify that the predetermined modeling system (or spectral masks) are selected from either and American, or ETSI model and that the noise masks include ETSI noises.

It would have been obvious to one of ordinary skill in the art at the time of this application to utilize well known standards (American or European, which would include ETSI noise models) to obtain the predetermined channel models for the advantage of conforming with recognized standards when qualifying loops for data transmission.

5. **Claims 15-17,19,21** are rejected under 35 U.S.C. 103(a) as being unpatentable over Belge et al. (US20060182169A1), and further in view of Goldstein et al. (6567465).

As per **claim 15**, Belge discloses a DSL modem with crosstalk detection as per the claim 1 rejection, but does not specify the line interface details of the DSL modems.

Goldstein discloses a DSL modem with a front end, transmitter/receiver (could be read as any part of blocks 30,40), and associated A/D and D/A converters 68,72 (Col 4 lines 15-35). It would have been obvious to one of ordinary skill in the art at the time of this application to implement the line interface circuitry taught by Goldstein for the purpose of interfacing with the transmission line.

As per **claim 16**, it is rejected as per the claim 2 rejection.

As per **claim 17**, it is rejected as per the claim 3 rejection.

As per **claim 19**, it is rejected as per the claim 5 rejection.

As per **claim 21**, Belge discloses that the DSL modem may be an ADSL modem (para. 41).

6. **Claims 18,20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Belge et al. (US20060182169A1) in view of Goldstein et al. (6567465).as applied to claim 15.

As per **claims 18,20**, they are rejected as per the claim 4,6 rejections.

#### ***Response to Arguments***

1. Applicant's arguments have been fully considered but they are not persuasive.

As per applicant's arguments that Belge does not directly detect the noise sources. Examiner contends that Belge does directly detect the noise sources. Belge paragraphs 90-92 disclose that Belge directly detects the PSD of idle channel noise (not injected tones as stated by applicant), Belge then compares the measured (directly detected) PSD to various known spectral masks in order to minimize the error. These are the same steps disclosed in applicant's specification (as noted above in the Response to Amendment section. Both Belge and the applicant are performing iterative processes on a directly measured (directly detected) noise source. There is nothing else in the claim language that would differentiate Belge and the applicant's claimed invention.

2. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Jamal whose telephone number is 571-272-7498. The examiner can normally be reached on M-F 9AM-6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis A Kuntz can be reached on 571-272-7499. The fax phone numbers for the organization where this application or proceeding is assigned are **571-273-8300** for regular communications and **571-273-8300** for After Final communications.

Examiner Alexander Jamal

November 18, 2007

  
MELUR RAMAKRISHNAIAH  
PRIMARY EXAMINER